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## FLORAL HOROLOGE FOR KANSAS.

BY B. B. SMYTH, TOPEKA.

Read before the Academy October 27, 1898.

This "clock" represents the time of day of the opening and closing of a goodly number of native flowers and a few naturalized flowers in the state of Kansas, and is the result of many years observations on Kansas plants. The time given for each species is that observed during the height of the flowering season for that particular species. The time of opening (and closing) is modified somewhat by the length of the day and dense cloudiness. The clock is still subject to correction, the result of further needed and closer observation:

- 1 a. m.** *Argemone alba*, thistle poppy; flowers remain open all day.  
*Convolvulus incanus*, hoary bindweed; flowers close about noon.
- 2 a. m.** *Convolvulus sepium*, hedge bindweed; flowers close at evening.  
*Ipomoea pandurata*, wild moonflower; close at 10 a. m.
- 3 a. m.** *Ipomoea leptophylla*, bush morning-glory; close at noon.  
*Tragopogon porrifolius*, salsify; close before noon.  
*Ipomoea lacunosa*, wild potato vine; close about 2 p. m.
- 4 a. m.** *Convolvulus arvensis*, bindweed; close at 10 a. m. in sunshine, later in cloudy weather.  
*Cichorium Intybus*, chicory; close before noon.  
*Ipomoea quamoclit*, cypress-vine; close about noon.  
*Ipomoea coccinea*, scarlet cypress-vine; close about noon, except in cloudy weather.  
*Oenothera speciosa*, white evening-primrose; last all day.  
*Krigia oppositifolia*, dwarf dandelion; close at 10 a. m.
- 5 a. m.** *Ipomoea purpurea*, morning-glory; close about 11 a. m., except in cloudy weather.  
*Ipomoea hederacea*, blue morning-glory; close about noon, except in cloudy weather.  
*Mentzelia oligosperma*, small mentzelia; close at 1 p. m.  
*Sonchus oleraceus*, sow thistle; withers about noon.  
*Commelina virginica*, day-flower; close in heat of day.  
*Evolvulus argenteus*, dwarf morning-glory; close at 3 p. m.  
*Nelumbo lutea*, yellow water-lily; close at 2 p. m.; reopen several days in succession.  
*Lactuca scariola*, prickly lettuce; close at or before noon.  
*Lygodesmia pauciflora*, tooth-leaved gas-plant; close early in afternoon.
- 6 a. m.** *Tradescantia virginiana*, spiderwort; close about noon.  
*Lygodesmia juncea*, small-leaved gas-plant; close early in the afternoon.  
*Sonchus asper*, sow thistle; wither at noon.  
*Claytonia virginica*, spring beauty; close in afternoon; reopen once.  
*Callirrhoe involucrata*, rose mallow; close 6 to 7 p. m.; reopen next day once or twice.  
*Prenanthes crepidinea*, large drop-flower; drop off in afternoon.  
*Castalia pudica*, white water-lily; close at 3 p. m.; reopen several days in succession.  
*Pyrrophappus scaposus*, tuberous dandelion, close at 6 p. m.; reopen for several days in succession; close also in continued rain or dense cloudiness.



- 7 a. m.** *Geranium carolinianum*, wild geranium; close at noon.  
*Lactuca ludoviciana*, wild lettuce; close at noon.  
*Lactuca floridana*, blue-flowered wild lettuce; close after noon.  
*Ruellia ciliosa*, ruellia; flowers drop off about 3 p. m.  
*Dianthera americana*, water justice; drop off middle of afternoon.  
*Hieracium longipilum*, hairy hawkweed; close middle of afternoon.  
*Portulaca retusa*, notched purslane; close after noon.  
*Callirrhoe alcæoides*, pink rose-mallow; close in evening to reopen next day.  
*Lactuca sagittifolia*, arrow-leaved lettuce; flowers close at noon.
- 8 a. m.** *Troximon cuspidatum*, wild dandelion; close at dusk; reopen next day.  
*Taraxacum dens-leonis*, dandelion; close at dark to reopen next day, except in rainy weather, when it may be closed in daytime and open at night. Do not close for a shower in sunshiny weather.  
*Oxalis stricta*, sorrel; close at noon for good.  
*Oxalis violacea*, pink sorrel; close at noon to reopen (?).  
*Houstonia angustifolia*, bluets; close at noon; reopen for two or three days in succession.  
*Linum rigidum*, yellow flax; fall off at 1 p. m.  
*Linum sulcatum*, large-flowered yellow flax; fall off at 2 p. m.
- 9 a. m.** *Houstonia minima*, little bluets; close at 2 p. m.; reopen next day once.  
*Specularia leptocarpa*, Venus mirror; close permanently at 2 p. m.  
*Specularia perfoliata*, Venus mirror; close at 2 p. m. and disappear.  
*Portulaca oleracea*, purslane; wilt after noon.  
*Portulaca pilosa*, wild portulaca; close at 1 p. m.; do not reopen; while the flowers of *P. grandiflora*, a cultivated plant said to be a variety of this and whose flowers open and close at about the same time, do reopen.
- 10 a. m.** *Echinocystis lobata*, wild cucumber; close at 3 p. m.  
*Linum usitatissimum*, flax; drop off about 5 p. m.  
*Abutilon avicennæ*, velvet-leaf; close before noon.  
*Sida spinosa*, prickly sida; close at 2 p. m.  
*Opuntia polyacantha*, many-spined prickly pear; close at 4 p. m. to reopen for several days. This has sensitive stamens.
- 11 a. m.** *Talinum calycinum*, large-flowered talinum; close early in afternoon.  
*Cucurbita foetidissima*, wild gourd; close at 3 p. m.  
*Opuntia fragilis*, little prickly pear; close at 4 p. m., to reopen for several days.
- 12 a. m.** *Opuntia humifusa*, western prickly pear; close at 5 p. m. to reopen.  
*Hibiscus trionum*, flower-of-an-hour; close at 2 p. m.
- 1 p. m.** *Hibiscus militaris*, evening hibiscus; remain open until dark.  
*Talinum teretifolium*, terete-leaved talinum; close 2 to 3 p. m.  
*Silene antirrhina*, catchfly; close at 3 or 4 p. m.
- 2 p. m.** *Mamillaria missouriensis*, straw-colored pincushion-cactus; close at 5 p. m. to reopen next day.  
*Mamillaria vivipara*, red pincushion-cactus; close at 5 p. m. to reopen next day.
- 3 p. m.** *Mentzelia nuda*, great mentzelia; close at daylight to reopen.  
*Silene stellata*, starry campion; close toward midnight.
- 4 p. m.** *Allionia nyctaginea*, wild four-o'clock; close next day.  
*Allionia linearis*, narrow-leaved wild four-o'clock; close next morning.  
*Allionia albidia*, white wild four-o'clock; close next morning.

- 5 p. m.** *Mentzelia ornata*, great mentzelia; close in the morning to reopen in the evening.  
*Silene noctiflora*, evening catchfly; wilt next morning.  
*Oenothera triloba*, cone-stem evening-primrose; last nearly all next day.
- 6 p. m.** *Abronia fragrans*; wilt early in the morning.  
*Datura stramonium*, jimson; wilt next morning.  
*Convolvulus repens*, evening beauty; close next morning.  
*Gaura coccinea*, scarlet gaura; flowers turn pink next morning and fade about 11 a. m.  
*Oenothera watsoni*, stemless evening primrose; last all next day.  
*Oenothera biennis*, tall evening-primrose; wilt next day.  
*Heliotropium convolvulaceum*, sweet-scented heliotrope; wilt next day.  
*Oenothera rhombipetala*, point-petaled evening-primrose; wilt next day about 9 to 10 a. m.  
*Oenothera sinuata*, small-flowered evening-primrose; wilt next day.  
*Oenothera hartwegi*; wilt at 10 a. m. next day.
- 7 p. m.** *Oenothera missouriensis*, Missouri evening-primrose; wilt at sunrise.  
*Oenothera grandiflora*, large evening-primrose; open very promptly; wilt at 7 a. m. next day.  
*Oenothera canescens*, pink evening-primrose; wilt next morning.  
*Oenothera fremontii*; open promptly; wilt at 9 a. m. next day.  
*Cephalanthus occidentalis*, button-bush.
- 8 p. m.** *Gaura biennis*; wilt promptly at 10 a. m. next day.  
*Gaura parviflora*; wilt about 11 a. m. next day.
- 9 p. m.** *Gaura (Stenosiphon) linifolia*; flowers last and remain white all next day.

There are many other plants that open at periodic times; but observations upon them have not been sufficient to determine positively their habits.

(The "clock" contains the names of a few cultivated plants in parentheses.)

## LIST OF PLANTS IN MY FLORIDA HERBARIUM.

A. S. HITCHCOCK, MANHATTAN.

Read (by title) before the Academy December 30, 1898.

The list presented is based entirely upon plants in my herbarium. There are yet a number of specimens that remain unidentified, especially among the palms, pines, and the genera *Paspalum* and *Panicum*. Others have been somewhat doubtfully referred to certain species though they show some differences and may ultimately prove to be new species. But it seems best to leave the description of new species to those who have access to the large herbaria.

For the sake of brevity, the collector's name is represented by his initial in most cases. These initials are:

C = Mr. A. H. Curtiss, sets of North American plants.

N = Mr. Geo. V. Nash, sets of Florida plants.

R = Prof. P. H. Rolfs, Lake City, Florida Agricultural College, who has given me much help in the work.

W = Mr. H. J. Webber, Department of Agriculture, Washington, for several years stationed at Eustis.

S = Mr. J. H. Simpson, plants distributed by the Department of Agriculture.